REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-18 are presently active in this case. The present Amendment amends Claims 1-11 and 15; and adds new Claims 17-18 without introducing any new matter.

In the outstanding Office Action, Claims 1-3, 7, 11, and 15 were objected to because of informalities. Claims 1-8 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claims 1-16 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claims 1-2, and 9-10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Beshai et al. (U.S. Patent No. 6,339,488, hereinafter "Beshai"). Claims 3-5, and 11-13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Beshai in view of Greenberg et al. (U.S. Patent No. 6,970,451, hereinafter "Greenberg"). Claims 6-8, and 14-16 were rejected under 35 U.S.C. § 103(a) as unpatentable over Beshai in view of Drwiega et al. (U.S. Patent No. 6,842,463, hereinafter "Drwiega").

In response to the claim objections regarding the expression "other," Claims 1-3, 7, 11 and 15 are herewith amended to recite "another," as suggested by the pending Office Action. (Office Action, pp. 2-3.)

In response to the rejection of Claims 1-8 under 35 U.S.C. § 101 as being directed to non-statutory subject matter, these claims are amended to be directed to a system. In light of these changes, Applicants respectfully submit that the rejection under 35 U.S.C. § 101 is believed to be overcome.

In response to the rejection of Claims 1-8 and 9-16 under 35 U.S.C. § 112, second paragraph, Claim 1 is amended to recite "inputs a packet received from a user terminal outside of the external-packet transmitting/receiving unit to the internal-packet transmitting/receiving unit." These features find non-limiting support in the specification as

originally filed, for example at paragraph [0044], and no new matter has been added. In light of this amendment, the features of independent are believed to be definite, and the rejection on these grounds is respectfully traversed.

Moreover, dependent Claim 6 is amended to recite "a resource management unit that manages resource states of all of the wavelength paths relating to an interface to which the edge-packet transfer unit of each of the full-mesh wavelength-division-multiplexing transmission units is connected." This feature finds non-limiting support in Applicants' Figure 3, and in the specification at pages 14-15, paragraph [0035]. No new matter has been added.

In addition, method Claims 9-10 have been amended to recite a first, second and third step of transmitting a packet, to address the issue of antecedent basis. Because this change is only formal in nature, it is believed that no new matter has been added. Independent Claim 9 is also amended to recite that there are one or more edge packet transfer units. These features find non-limiting support in the specification at paragraph [0044].

Furthermore, independent Claim 1 is amended to recite that the internal-packet transmitting/receiving unit of the edge-packet transfer unit transmits the packet input ***from the full-mesh wavelength-division-multiplexing transmission unit*** to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit. These features find non-limiting support in Applicants' disclosure as originally filed, for example at page 17, paragraph [0044]. No new matter has been added.

In response to the rejection of Claim 1 under 35 U.S.C. § 102(b), Applicants respectfully request reconsideration of this rejection and traverse the rejection, as discussed next.

Briefly summarizing, Applicants' independent Claim 1 is directed to a packet communication system, including *inter alia* at least two full-mesh wavelength-division-

multiplexing transmission units, each of which includes n number of interfaces, the full-mesh wavelength-division-multiplexing transmission units capable of establishing a bidirectional full-mesh communication between all of the interfaces using a wavelength path based on a wavelength-division-multiplexing technique on the optical network, where n is an integer equal to or greater than 3. Moreover, independent Claim 1 further requires *inter alia* an edge-packet transfer unit that includes at least a packet recognizing unit, an external-packet transmitting/receiving unit, and an internal-packet transmitting/receiving unit; and an internetwork connection unit that includes at least a packet recognizing unit and a packet transmitting/receiving unit, and connects the full-mesh wavelength-division-multiplexing transmission units in a multistage tree-shaped structure through the edge-packet transfer units.

Turning now to the applied references, Beshai is directed to a fully meshed telecommunications network based on an optical core transport network 12 having a plurality of optical nodes 14 that are connected with a number of electronic edge switches 18, 40. (Beshai, Abstract, Fig. 1, col. 4, ll. 49-65.) Beshai explains that an edge switch 18, 40 takes in all the traffic from any local nodes and diverts some to the optical node, and some other back to the local nodes. (Beshai, col. 5, ll. 46-53.) In a so called "single access configuration, Beshai explains that the optical edge switch 18 is associated with the optical node 14, and that the selection of an end-to-end path for routing data traffic is determined according to network occupancy as well as link cost indices. (Beshai, col. 6, ll. 63-67.) This routing principle is explained in Beshai's Figures 4-5, where the vacancy of each node is analyzed to selectively rout data traffic to reduce cost indices. (Beshai, col. 7, ll. 14-30.)

Furthermore, Beshai discusses that his wavelength-division multiplexing (WDM) network can be arranged as a ring structure, where a parallel dual ring 120 can be used, so that each direction of transmission has more than one optical channel, to increase

transmission bandwidth for data. (Beshai, co;. 8, ll. 31-46.) To optimally use this ring architecture, Beshai suggests a rotator-based electronic switch that has m inlet modules, m middle buffers and m outlet modules. (Beshai, col. 10, ll. 32-40, Fig. 15.) Beshai explains that containers including data can be sorted in accordance with their outlet ports to facilitate their assignment to the middle buffers. In this electronic switch, each inlet module can transfer a number of containers, which may be addressed to different outlet ports, during its access time. (Beshai, col. 10, ll. 56-59.)

However, Beshai fails to teach all the features of Applicants' independent Claim 1. In particular, Beshai at least fails to teach:

> and if the next destination of the packet identified by the packet recognizing unit ***is the edge-packet transfer unit of its own or the edge-packet transfer unit that is not connected to the full-mesh wavelength-division-multiplexing transmission unit***, transmits the packet input from the full-mesh wavelength-division-multiplexing transmission unit to the external-packet transmitting/receiving unit.

(Claim 1, portions omitted, emphasis added.) In other words, the language of Applicants' independent Claim 1 requires that (a) a next destination of a packet transmitted through the optical network that is identified by the packet recognizing unit, (b) the next destination is either the same edge-packet transfer unit that received the packet, or a destination that is not connected, (c) the packet is transmitted to the external-packet transmitting/receiving unit. The cited passages of Beshai are silent on such features. It seems that Beshai merely explains that traffic is routed based on the matrix of cost indices of a two-hop path. (Beshai, col. 7, ll. 14-32.)

The applied reference Drwiega, used by the pending Office Action to reject some of the dependent claims in combination with Beshai, fails to remedy the deficiencies of Beshai, even if we assume that the combination is proper. This reference is directed to a management of the bandwith capacity of tunnels so that the network is adaptive to the stochastic nature of

incoming traffic. (Drwiega, Abstract.) Drwiega explains that a network administrator may decide that all requests for service from a first given node to a second given node should be served by a single tunnel, but optionally, the administrator can define different classes of service that can be served by different tunnels. (Drwiega, col. 5, ll. 42-46.) In this respect, Drwiega explains that if the available capacity of a tunnel is insufficient to accommodate a connection request, the admission controller 204 sends an indication of the available capacity to the originator of the request. (Drwiega, col. 5, ll. 54-60.) But just like the passages in Beshai, these features do not anticipate the features of Applicants' independent Claim 1 related to the next destination of the packet that is identified by the packet recognizing unit, as discussed above.

Moreover, Beshai fails to teach some other features of independent Claim 1. In particular, Beshai fails to teach that the edge-packet transfer unit includes at least a packet recognizing unit, and external-packet transmitting/receiving unit, and internal-packet transmitting/receiving unit, even if we assume in arguendo that electronic edge switch of Beshai reads on the edge-packet transfer unit.

In particular, reference numerals 42, 44 in Figure 2 of Beshai are ingress port (entrance port) and egress port (exit port), respectively. As described at column 6, lines 8 to 11 of Beshai, "[t]he traffic received from an ingress port 42 may be split into two streams, a stream 44 directed to egress ports 46 of the same switch, and another stream 48 directed towards the optical core through ports 50," and therefore the edge switch of Beshai just splits the traffic, and fails to identify a next destination of a packet from a header of the packet.

Therefore, Bashai's electronic edge switches 18, 40 fail to include the packet recognizing unit. Wordings of "ingress" and "egress" used in Beshai, instead of "input" and "output", also suggest a function of the electronic edge switch is just splitting the traffic.

Regarding the feature of "an internetwork connection unit", Beshai fails to explicitly disclose that the internetwork connection unit includes at least a packet recognizing unit, an external-packet transmitting/receiving unit, and internal-packet transmitting/receiving unit, even if the optical node of Beshai is considered *inter alia* as the internetworking connection unit.

As disclosed at column 5, lines 8 to 10 of Beshai, the *optical nodes only shuffle respective channels* received from their electronic edge switches to respective optical nodes. Therefore, the optical nodes only rearrange respective channels to produce a random order, and accordingly, fail to identify a next destination of a packet from a header of the packet. Thus, the optical node of Beshai fails to include the packet recognizing unit.

The pending Office Action asserts that Beshai teaches the packet recognizing unit by teaching "at each node, external traffic is buffered into separate queues according to destination" at column 10, lines 63 to 67. However, as discussed above, the optical node only shuffles the external traffic, and therefore, Beshai fails to teach the feature of the packet recognizing unit of identifying a next destination of a packet from a header of the packet.

Moreover, the pending Office Action asserts that Beshai teaches the external-packet transmitting/receiving unit at column 7, lines 6 to 16. However, at column 7, lines 6 to 16 of Beshai recites "Fig. 2 illustrates in detail the traffic flow within an electronic edge switch 40. The traffic received from an ingress port 42 may be split into two streams, a stream 44 directed to egress ports 46 of the same switch, and another stream 48 directed towards the optical core through ports 50. The traffic received from a port 52, incoming from the optical core, may be split into two streams, a stream 54 directed towards the egress ports 46, and another stream 56 returning to the optical core and directed to various destinations." Therefore, Beshai fails to teach the feature of the external-packet transmitting/receiving unit

of inputting a packet received from a user terminal outside of the external-packet transmitting/receiving unit to the internal-packet transmitting/receiving unit.

Therefore, the cited passages of the applied reference Beshai and Drwiega, taken in any proper combination, fail to teach every feature recited in Applicants' Claim 1, so that Claims 1-8 are believed to be patentably distinct over Beshai and/or Drwiega. Accordingly, Applicants respectfully traverse, and request reconsideration of the rejection based on these references.

Independent Claim 9 recite features that are analogous to the features recited in independent Claim 1, but directed to a method. In particular, Claim 9 requires that "the packet recognizing unit of the edge-packet transfer unit identifying ***the same edge-packet transfer unit*** that is a next destination of a packet with respect to a packet received by the external-packet transmitting/receiving unit." (Claim 9, portions omitted, emphasis added.) Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that the rejections of Claim 9, and the rejections of all associated dependent claims, are also believed to be overcome in view of the arguments regarding independent Claim 1.

Moreover, new Claims 17-18 have been added. New Claims 17-18 recite features regarding the next destination not being the final destination of the packet, and depend upon Claims 1 and 9, respectively. These features find non-limiting support in Applicants' disclosure as originally filed, for example at p. 17, paragraph [0044]. No new matter has been added.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-18 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

James J. Kulbaski
Attorney of Record
Registration No. 34,648

Nikolaus P. Schibli, Ph.D.
Registered Patent Agent
Registration No. 56,994

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)